IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF WISCONSIN

BUYERS PRODUCTS COMPANY	)	Case No. 3:16-cv-00220-JDP
Plaintiff	)	
vs.	)	
CURT MANUFACTURING LLC	)	
Defendant	)	

REBUTTAL EXPERT REPORT OF PHILIP J. O'KEEFE, PE

I, Philip J. O'Keefe, PE, have been retained by defendant CURT Manufacturing, LLC, (CURT) as an engineering expert. This report is a rebuttal to the expert report of Clark J. Radcliffe, dated February 17, 2017.

Summary of Rebuttal Report

1. Buyers Products Company (Buyers), alleges, and their expert, Clark J. Radcliffe, Ph.D, opined, that CURT trailer hitch models 48004, 48005, 48006, 48007, 48010, and 48012 infringe United States Patent No. 6,139,043 (the '043 patent). Dr. Radcliffe's expert report attempts to prove infringement as shown in Table 1.

CURT Model	Alleged Infringement of '043 Patent Claims
48004	9, 10, 11, 15, 17, and 20
48005	9, 10, 11, 15, 17, and 20
48006	9, 10, 11, 12, 15, 17, 19, and 20
48007	9, 10, 11, 12, 15, 17, 19, and 20
48010	9, 10, 11, 15, 17, and 20
48012	9, 10, 11, 12, 15, 17, 19, and 20

Table 1 – Accused Devices

2. Dr. Radcliffe's infringement analysis was performed using Buyers' proposed claim constructions, and without using ANY of CURT's proposed claim constructions. Dr. Radcliffe accordingly appears to agree with Defendant CURT that, if any of CURT's proposed constructions are adopted, there is no infringement. I do not agree with Buyer's proposed claim construction. It is my opinion that CURT's claim construction represents an accurate interpretation of the '043 patent's disputed claim terms. Moreover, it appears that Dr. Radcliffe is neither a lawyer, a patent attorney, a patent examiner, a linguist, nor a judge, and has no significant experience in the interpretation of common, non-engineering and non-towing words such as "proximal", "distal", "neck", "upper", "lower" and "intermediate". These claim terms of "proximal", "distal", "neck", "upper", "lower" and "intermediate" are not words that have acquired special meaning in either the towing industry,

the metal-forming industry, or the general field of engineering. Dr. Radcliffe's reliance in his report on common dictionary definitions – and not definitions from specialized engineering or towing dictionaries or glossaries - underscores that these terms have no specialized meaning. Dr. Radcliffe's report sets forth no basis why a "person of ordinary skill in art", whoever Dr. Radcliffe believes that would be, would have a special, particularized or different understanding of any of the terms "proximal", "distal", "neck", "upper", "lower" and "intermediate" as compared to the understanding of a common layperson. Of highest importance, Dr. Radcliffe's report sets forth no comparison or explanation of how Judge Gwin's interpretation of these terms is incorrect or insufficient. Dr. Radcliffe's report sets forth no basis why Plaintiff's or his interpretation (as a paid expert witness for the Plaintiff) should be favored over the interpretations given by Judge Gwin (the impartial Federal District Court Judge, trained in legal analysis and experienced in adjudicating patent disputes, who already once construed these terms).

3. It is my opinion that the accused CURT products do not embody each and every element of the independent claims of the '043 Patent, either literally or equivalently, and using either CURT's proposed constructions or Buyers' proposed constructions. Because the CURT products do not infringe any independent claims, therefore they also do not literally infringe any of the dependent claims of the '043 patent.

Legal Standard

4. I understand that in order to establish literal infringement of a patent claim, every limitation set forth in the claim must be found in an accused product. I understand that all limitations are material and that I must look at each individual claim limitation to determine whether the accused products embody every limitation of the claim. A

dependent claim cannot be infringed unless the claim from which it depends has also been infringed.

One of Ordinary Skill in the Art

5. Throughout his report, Dr. Radcliffe refers to what "a person of ordinary skill in art" would understand regarding the specification and claim language of the '043 patent. However, he fails to explain what that person's education and experience amounts to pertaining to the '043 patent.

6. As stated in my Validity Analysis Expert Report, dated February 17, 2017, it is my opinion that a person of ordinary skill in the art to which the '043 patent pertains would have at least: (1) a BS in mechanical engineering, and (2) three years of work experience in the design of load bearing mechanical components. One of ordinary skill in the art would have studied *strengths of materials* in at least one course, and more likely two, in his or her undergraduate mechanical engineering curriculum. In s*trengths of materials* courses, students learn to analyze forces on beams and machine elements to determine the stresses they create within the beams and machine elements. An example of an undergraduate *strengths of materials* textbook would be, *Mechanics of Materials*, by E. P. Popov. (ref. Appendix A, 12) Alternatively, a person of ordinary skill in the art might not have formal education including a mechanical engineering degree, but could acquire the same level of understanding by working under the direction of a qualified mechanical engineer for five to ten years in the field of mechanical design. A person of ordinary skill would also be considered a person of ordinary creativity.

7. I will use my definition of a person of ordinary skill in the art as the basis for the following analysis of the proposed claim construction of the plaintiff and defendant, as well as my infringement analysis.

Proposed Claim Construction

8. The '043 patent claims a pintle hook trailer hitch as shown in Figures 1 and 2 of the specification.

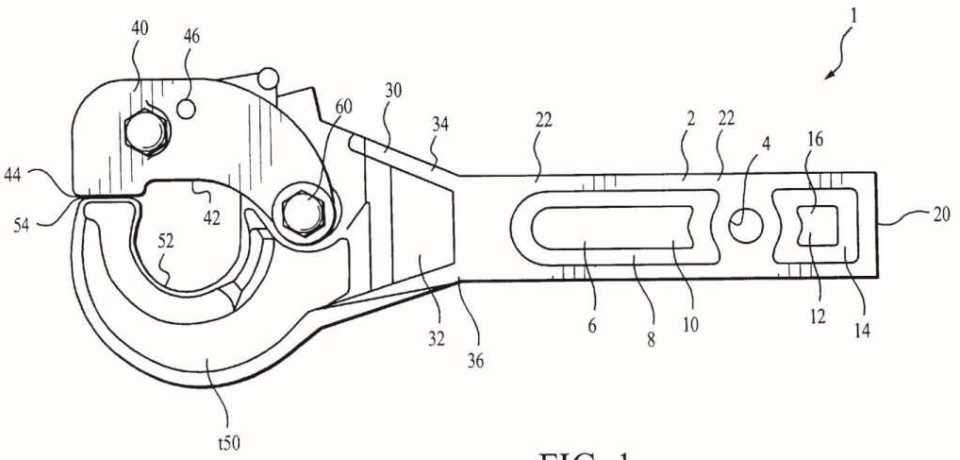


FIG. 1

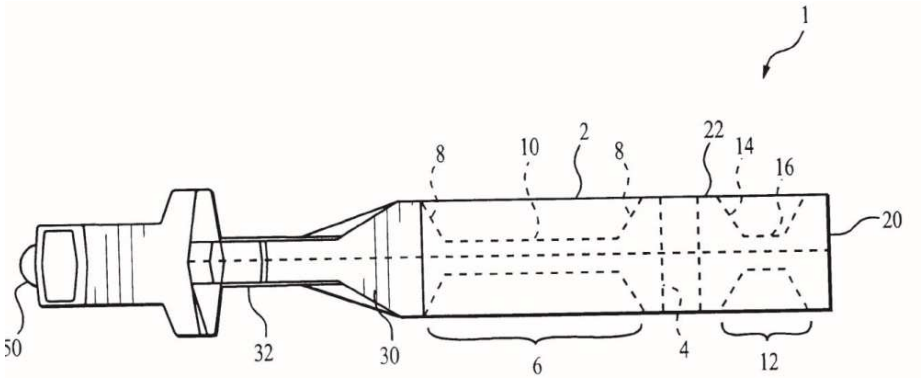


FIG. 2

United States Patent No. 6,139,043, Figures 1 and 2

Proximal End and Distal End

9. In my opinion, Buyers' claim construction and Dr. Radcliffe's agreement with it is unsupported and does not make sense. The '043 patent uses "proximal end" and "distal end" inconsistently between the specification and the claims. For example, the '043 patent refers to element number 6 as a "medial narrowed region" and refers to element number 12 as a "distal narrowed region". (ref. Appendix A, 2, col. 3, l. 38-48.) How could element number 12 be a "distal narrowed region" if the proximal end of the bar is the end, as argued by the Plaintiff and Dr. Radcliffe, which is adapted to engage a receiver assembly? (ref. Appendix A, 2, Figure 1). With little explanation, Dr. Radcliffe argues that this usage of "a *distal* narrow region **12** generally located **45** between the aperture **4** and the bar end **20**" referring to a location *away from* the center of the bar" supports the Plaintiff's claim construction. To the contrary, if the term "distal" means "away from the center of the bar", then the term "proximal" necessarily means "toward the center of the bar". The Plaintiff's proposed construction of "proximal" is NOT "toward the center of the bar". In other words, Dr. Radcliffe's explanation of the term "distal" as used in the '043 patent specification DIRECTLY CONTRADICTS Dr. Radcliffe's constructions of the terms "proximal" and "distal". Further, both independent claims 9 and 17 require "said proximal end of said bar is adapted to engage a receiver assembly". In the Plaintiff's proposed construction, "proximal" means "the end of the 'longitudinal bar member' adapted to engage a 'receiver assembly'," making the claim usage of "proximal" entirely redundant. In other words, the Plaintiff's proposed construction interprets the limitation of "said proximal end of said bar is adapted to engage a receiver assembly" to mean that "the end of the longitudinal bar member adapted to engage a receiver assembly is adapted to engage a receiver assembly." Dr. Radcliffe's

construction accordingly makes no sense. Dr. Radcliffe's report offers no explanation or justification for why the term "proximal" should be interpreted in a way that the "proximal" construction is subsumed by the immediately following, "adapted to engage a receiver assembly," express limitation of the claim. To my understanding, and to follow canons of claim construction, each limitation is to be given meaning. The term "proximal" should be given meaning, and to be given meaning, it must mean something other than merely "the end adapted to engage a receiver assembly".

10. Due to the inconsistent use of proximal end and distal end in the '043 patent's specification and claims, I choose to accept CURT's claim construction for "*proximal end*" which is "*the end of the bar which, in use, is toward the front of the towing vehicle*." as making sense of the claims (ref. Appendix A, 16). Dr. Radcliffe's only denigration of CURT's claim construction is that "a person of ordinary skill in the art would then recognize that a pintle hitch could be connected to a receiver at either the front or rear of a vehicle." (ref. Appendix A, 34, ¶ 7) Firstly, Dr. Radcliffe's report provides no explanation for why a worker skilled in the art would have a different recognition of where the receiver is placed on the vehicle as compared to the understanding of a common lay person. Secondly, both a person skilled in the art and any common lay person would look to the '043 patent for the teaching of where to attach the receiver to the vehicle, and the '043 patent expressly states "when the assembly 1 is engaged to the vehicle, i.e. a tow bar receiver typically installed along the **rear** underside of the vehicle". (ref. Appendix A, 2, col. 3, l. 36-38.) CURT's construction of defining "proximal" and "distal" in terms of the "front" or "rear" of the towing vehicle is 100% consistent with the orientation taught in the specification and 100% consistent with the language used in the specification. The denigration drawn by Dr. Radcliffe, that the claimed

structure could possibly be used in an orientation and location which is non-typical, not mentioned in the '043 patent, and not shown to be practical or common, has no bearing toward the proper claim construction.

A Pintle Hook and Latch Assembly

11. Dr. Radcliffe agrees with Buyers' claim construction that "*pintle hook and latch assembly*" should be construed to mean, "*a unit comprising a pintle hook and a latch that have been fitted together.*" I disagree. The term "unit" does not appear anywhere in the '043 patent specification or claims. Nowhere in the patent is it stated that the latch and hook have to be "fitted together." The portions of the specification cited by Dr. Radcliffe make no mention of a "unit" or "fitted together", and thus do not support Plaintiff's position. Dr. Radcliffe is simply reading extraneous limitations into the claims as requested by Plaintiff in an attempt to distinguish over prior art, without providing any basis or justification for the addition of such extraneous limitations.

12. I agree with CURT's claim construction where "*pintle hook and latch assembly*" means that, "*the latch assembly may include components in addition to the latch.*" (ref. Appendix A, 16) CURT's construction takes into account components of the '043 patent latch assembly like aperture 46, pivot member 60, etc. (ref. Appendix A, 2, Figure 1). Dr. Radcliffe's report makes no attempt to discredit or disagree with CURT's proposed claim construction.

Neck

13. Dr. Radcliffe states, "*The above use of the '043 patent claim term "neck" conflicts with the many Merriam-Webster (merriam-webster.com) definitions of neck such as a body part connecting head to body, the narrow portion of a bottle that does not "connect", or*

the stringed instrument part supporting the fingerboard and strings. In the context of the '043 patent specification, I believe a person of ordinary skill in the art would simply accept the claim term "neck" as it is used in the patent…There is no mention of a narrower transition or a wider bar. I believe the understanding of a person of ordinary skill in the art would have upon reviewing the 043 patent is consistent with the "neck" definition proposed by Buyers…" (ref. Appendix A, 34, ¶ 10)

14. I disagree. In my opinion, both a common lay person and a person of ordinary skill in the art would certainly see and immediately understand that Figure 2 of the '043 patent clearly shows that the neck 30 is a distinct narrowed or necked down transition between the wider bar 2 and the hook/lower jaw 50. He or she would recognize and immediately understand that narrowing or necking down this transition reduces the material required to make the pintle hitch of the '043 patent, and thus reduces its manufacturing cost and weight. This solves one of the problems of the prior art as disclosed in the '043 patent. (ref. Appendix A, 2, col. 1, lines 54 – 63). I do not believe that the '043 patent has acted as its own lexicographer to define a "neck" as something different than the common understanding of the term "neck".

15. The concept of a "neck" is commonly used to describe a narrower transition portion of an object, particularly with regard to trailer hitch components. For example, a Test Link Services test report for Buyers refers to the "neck" in a failed ball hitch. This neck is shown in the report as a distinct narrowed transition portion between the base and the ball of the hitch. (ref. Appendix A, 35, pp. 2 - 6)

16. Based on my analysis above, I therefore agree with CURT's claim construction that the "neck" of the '043 patent is, "*a distinct, narrower transition portion of*

the pintle hitch between the wider bar and the hook/lower jaw." (ref. Appendix A, 16). CURT's proposed construction is both entirely consistent with the usage of the term "neck" as applied to every disclosed embodiment in the '043 patent and entirely consistent with Buyer's own usage of the term "neck" as shown by its testing documentation, as well as being entirely consistent with the entirety of the dictionary definitions cited by Dr. Radcliffe. CURT's proposed construction is also entirely consistent with the construction provided by Judge Gwin. (ref. Appendix A, 37)

Upper Strengthening Member

17. With regard to Buyer's proposed construction, Dr. Radcliffe states, *"… I believe the understanding of a person of ordinary skill in the art would have upon reviewing the 043 patent is consistent with the definition proposed by Buyers to mean "a region of the neck that makes the neck stronger, and is physically positioned higher than another ('lower') strengthening member, when the device is oriented in its typical working alignment"…"* (ref. Appendix A, 34, ¶ 11) I disagree based on the following analysis.

18. Dr. Radcliffe goes into a lengthy explanation of what the word "*upper*" means in what appears to be an attempt to support Buyers' allegation that the accused CURT products each have an "upper strengthening member" in the transition portion between the end of the bar and the pintle hook. The accused CURT products clearly do not have an "upper strengthening member" as I will explain in my '043 patent infringement analysis below.

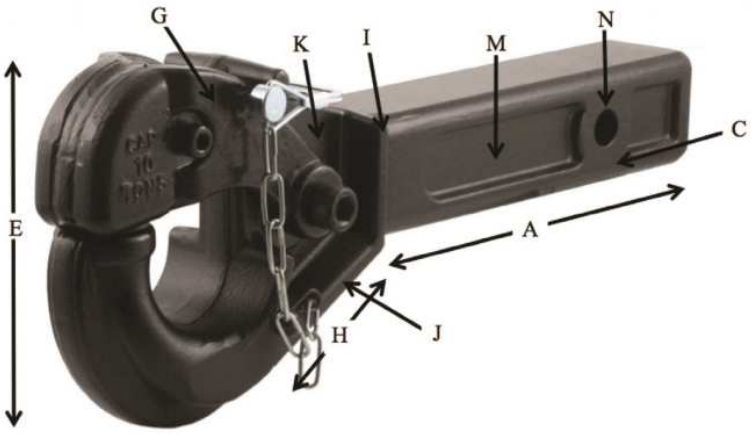
19. Dr. Radcliffe failed to explain and show how the word "*upper*" applies to the aforementioned rectangular section in the transition portion of the accused CURT products identified by Buyer's with the letter **I**. In the *Merriam Webster Collegiate Dictionary, 11th Edition* (ref. Appendix A, 36), the word, "*upper*," is defined as:

"*1 a : higher in physical position, rank, or order <the ~ lip>*

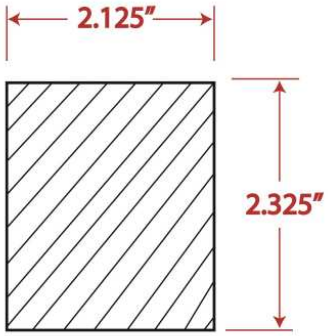
<~management>"

20. In my opinion, both a layperson and a person of ordinary skill in the art would, upon reviewing the '043 patent, immediately recognize and understand that the upper strengthening member 34 is clearly arranged with the lower strengthening member 36 and intermediate connecting portion 32 as distinct components to form the flanges and web of an I-shaped cross section. He or she would understand that, in this arrangement, the upper strengthening member 34 is a flange structure of the neck 30 that is in a higher physical position than the lower strengthening member 36, which is also a flange structure. He or she would understand that and the upper strengthening member 34 is above the intermediate connecting portion 32, which is a web structure. Based on the aforementioned dictionary definition and the mechanical engineering knowledge of one of ordinary skill in the art, there would be no doubt why the upper strengthening member 34 at the top of the "I" is called "upper" in the '043 patent. (ref. Appendix A, 2, Figures 1 and 2).

21. In each accused CURT product the rectangular section identified by Buyers as, "**I**," extends from the bottom face to the top face of the bar. For example, Dr. Radcliffe shows this rectangular section, "**I**," on an annotated photograph of an accused Curt model 48004 Receiver-Mount Pintle Hook trailer hitches. This annotated photograph is reproduced below.



In the Curt model 48004 trailer hitch, the rectangular section **I** has the following vertical cross sectional dimensions:



Upon examining exemplars of the six accused Curt products, and in view of the annotated photos of the accused Curt products in Dr. Radcliffe's report, it is my opinion that the rectangular section **I** is a continuation of the strengthening member **J**. Section **I** is not really distinct from strengthening member **J**. It is unclear how the rectangular section **I** can be referred to as either "upper" or a "strengthening member" by Dr. Radcliffe and Buyers. The rectangular section **I** is not for strengthening, and with an entirely rectangular vertical cross section, it does not strengthen any web. Portion **K** is not in any way "intermediate" with respect to rectangular section **I**.

22. Dr. Radcliffe also states, "*The word "flange" is inappropriate to define the claim term "upper strengthening member" because the word is only used in the '043 patent in the context of "Conventional pintle hitches utilize a flange or mounting plate…" and does not appear in any description of the upper strengthening member…*" (ref. Appendix A, 34, ¶ 11) I disagree with Dr. Radcliffe's reasoning because, again, as I explained above, it would be known and immediately recognized by one of ordinary skill in the art that the upper strengthening member 34 of the '043 patent is the upper flange portion of the I-shaped neck 30 cross section. (ref. Appendix A, 2, Figures 1 and 2) CURT's proposed construction is also entirely consistent with the construction provided by Judge Gwin and its use of the term "flange". (ref. Appendix A, 37)

23. In undergraduate mechanical engineering textbooks, such as, for example, *Mechanics of Materials, 2nd Edition*, by E.P. Popov, the upper strengthening members of I-shaped cross sections are commonly referred to as "flanges." (ref. Appendix A, 12, pp. 572-574) As a professor of mechanical engineering, Dr. Radcliffe should recognize that the upper strengthening member 34 in the '043 patent specification is commonly and appropriately defined as a "flange" in engineering terms. (ref. Appendix A, 2, Figures 1 and 2). The fact that prior art pintle hitches utilized separate flanges than the flange of the I-beam shape has no bearing on whether the term "flange" is proper to define the "upper strengthening member" shown in the '043 patent.

24. Dr. Radcliffe states, "*Relative size of the "upper strengthening member" is an inappropriate part of the term definition because relative size is also not specified in the '043 patent. Relative strength is also inappropriate in the "upper strengthening member" definition because the patent also does not describe the structural strength of the "upper*

strengthening member" relative to any other component. The presence of the "upper strengthening member" provides an additional strength to the "neck" but the specific amount is not described. I believe the understanding of a person of ordinary skill in the art would have upon reviewing the '043 patent is consistent with the "upper strengthening member" definition of Buyers "a region of the neck that makes the neck stronger, and is physically positioned higher than another ('lower') strengthening member, when the device is oriented in its typical working alignment"." (ref. Appendix A, 34, ¶ 11) I disagree.

25. In my opinion, one of ordinary skill in the art would understand the mechanical engineering concept of moment of inertia and how the cross sectional geometry of a load bearing member affects its strength. I demonstrated this concept in my February 17, 2017 Invalidity Report in this case. (ref. pp. 16-21) In my opinion, one of ordinary skill in the art would look at the '043 patent specification and immediately know that in the I-shaped cross section of the neck in the '043 patent, the size and position of the upper strengthening member 34 relative to the sizes and positions of the intermediate connecting portion 32 and the lower strengthening member 36 would be appropriate in determining the strength of the neck. (ref. Appendix A, 2, Figures 1 and 2) It would not be necessary to describe the sizes and strengths in the '043 patent in order for a person of ordinary skill in the art to successfully make and use the claimed invention. He or she would simply see the I-shaped cross section of the neck 30 disclosed in the '043 patent and design the I-shaped cross section of the physical embodiment's neck with an appropriately sized upper strengthening member, spaced an appropriate distance from the neck's neutral axis, for the neck to be strong enough so as to not fail under a specified load. Further, Dr. Radcliffe's report makes no attempt to explain why the portions **I** and **J** are "strengthening" members, rather than just material. Dr. Radcliffe

appears to be of the opinion that all material on the pintle hitch makes the structure stronger. To the contrary, I believe the '043 patent refers to the flanges 34 and 36 as "strengthening members" because, as would be readily and immediately recognized by a worker skilled in the art, flanges 34 and 36 increase the moment of inertia of a vertical cross-section relative to the intermediate connecting web portion 32. The portions **I** of the accused devices, having an entirely rectangular vertical cross section, is not a "strengthening member" at all.

26. Previously, Buyers accused Wallace Forge of infringing claims of the '043 patent. In the resulting litigation, with regard to the construction of the claim term "neck" and associated strengthening members, Judge Gwin wrote:

> *"The '043 Patent describes the neck structure as having three* ***distinct*** *members: an upper strengthening member, a lower strengthening member, and an intermediate connecting portion.*
>
> *… Figure 2, a drawing of a preferred embodiment, shows the strengthening members as in an "I-beam" structure. The neck of the '043 Patent is more than a transition region. Instead, this transition region must have identifiable strengthening members located at both the upper and lower portions of that region to strengthen adjacent areas of the neck.*
>
> *…The '043 Patent specifications shows only one embodiment of this neck area, the embodiment shown in Figures 1, 2, 3, 5, 6, 7, 8, 9, and 10. As to each, the specifications show the neck as a flange structure, 34, that is enlarged relative to the adjacent structural components, 32… the strengthening members must be in the upper*

> *region and lower region of the neck to add strength to the adjacent members…*
>
> *…strengthening members are consistently taught to be* ***a flange structure, larger than the adjacent connecting portion of the neck and providing structural strength in excess of the adjacent connecting portion of the neck****."* (ref. Appendix A, 37, pp 12 – 13, emphasis added)

From an engineering standpoint, I agree with Judge Gwin's interpretation of the '043 patent claim language regarding the neck, upper strengthening member, lower strengthening member, and intermediate connecting portion. In his expert report, it appears as though Dr. Radcliffe disagrees with Judge Gwin, but Dr. Radcliffe's report does not explain any reason why Judge Gwin's construction is wrong.

27. Based on my analysis above and Judge Gwin's claim construction, I therefore agree with CURT's claim construction that the "upper strengthening member is, "*a distinct flange structure of the neck, larger than the adjacent connecting portion of the neck and providing structural strength in excess of the adjacent connecting portion of the neck, that is above the intermediate connecting portion.*" (ref. Appendix A, 16)

Lower Strengthening Member

28. In the *Merriam Webster Collegiate Dictionary, 11th Edition* (ref. Appendix A, 36), the word, "*lower,*" is defined as:

> "*1 : relatively low in position, rank, or order*"

Based on this definition, my analysis above regarding the '043 patent claim term "upper strengthening member," and in view of the aforementioned construction of the '043 patent's

claim term "*neck*" by Judge Gwin, I agree with CURT's claim construction that the "*lower strengthening member*" is *"A distinct flange structure of the neck, larger than the adjacent connecting portion of the neck and providing structural strength in excess of the adjacent connecting portion of the neck, this below the intermediate connecting portion.*" (ref. Appendix A, 16)

Intermediate Connecting Portion

29. Dr. Radcliffe states, "*…The word "intermediate" only appears in the patent as part of the term "intermediate connecting portion." Merriam-Webster defines the word "intermediate" as "1: being or occurring at the middle place, stage, or degree or between extremes" or 2: of or relating to an intermediate school."* (ref. Appendix A, 34, ¶ 13) In view of this definition, in Figure 1 of the '043 patent, the intermediate connecting portion 32 is clearly occurring at a middle place that is between two extremes, namely, the upper strengthening member 34 and the lower strengthening member 36.

30. The accused CURT products clearly do not have an "*intermediate connecting portion*" in their transition section, as I will explain in my '043 patent infringement analysis below.

31. Dr. Radcliffe continues, *"These definitions both convey "between" as in a "connection" between two items but no additional required condition of relative position or "elevation" of those two items.* (ref. Appendix A, 34, ¶ 13) I fail to see how there is no required condition of relative position in Dr. Radcliffe's cited definition for "intermediate." His cited dictionary definition clearly states that when something is "*intermediate"* it is at the "*middle place*" or "*between extremes.*" Intermediate is a position relative to the two extremes.

32. Dr. Radcliffe then opines, *"For that reason, the CURT Manufacturing addition of an elevation condition in their definition is inappropriate. In the context of the '043 patent specification, I believe a person of ordinary skill in the art would simply accept the claim term as it is used in the patent…"* (ref. Appendix A, 34, ¶ 13) I agree with Dr. Radcliffe that a person of ordinary skill in the art (and a lay person) would simply accept the claim term, "intermediate" as it is used in the '043 patent. However, that person would refer to Figure 1 of the '043 patent and conclude that the intermediate connecting portion 32 is a web that is *between* the upper and lower strengthening members 34 and 36 which are flanges. As such, he or she would immediately recognize and understand that the intermediate connecting portion 32 is, as its name implies, *intermediate* and *connected* with the upper and lower strengthening members form an I-shaped cross section in the neck 30.

33. The Plaintiff and Dr. Radcliffe appear to be entirely ignoring the "intermediate" part of the claim term and is just considering the "connecting" part to support Buyers' claim construction. In the Plaintiff's proposed construction, "intermediate **connecting** portion" merely means "a region of the neck that is **connected** both to the 'upper strengthening member' and to the 'lower strengthening member'". Of course, the term "connecting" means that the portion is "connected". Buyer's proposed construction makes no attempt to give any meaning to the word "intermediate". To the contrary, the word "intermediate" has a different definition and a different meaning than the word "connected". Buyers' proposed claim construction totally excludes the concept of "intermediate" and reading the word "intermediate" out of the claims is wrong.

34. Based on my analysis above, I agree with CURT's proposed claim construction which defines the "*intermediate connecting portion*" to be "*a distinct portion of*

the neck that connects the upper strengthening member of the neck to the lower strengthening member of the neck and is at an elevation intermediate the upper strengthening member of the neck and the lower strengthening member of the neck." (ref. Appendix A, 16) Rather than construe the word "intermediate" as being entirely redundant of the "connecting" limitation, CURT's proposed construction makes clear that the terms "upper", "lower" and "intermediate" are all elevational terms, entirely consistent will all embodiments taught in the '043 patent.

Latch Being Pivotably Movable With Respect To Said Pintle Hook

35. Dr. Radcliffe states, "*…I believe the understanding of a person of ordinary skill in the art would have upon reviewing the 043 patent is consistent with the definition proposed by Buyers to mean "latch connecting to the pintle hook in a way that permits it to pivot while the pintle hook remains fixed."* (ref. Appendix A, 34, ¶ 14) I disagree.

36. The '043 patent's claim language does not require that either the latch or the hook remain fixed. Dr. Radcliffe is once again agreeing with Buyers' attempt to insert the limitations "*connecting*" and "*remains fixed*" into the patent's claim language to avoid prior art, without providing any justification or support for adding such extraneous claim limitations.

37. I agree with CURT's position that the claim term, "*latch being pivotably movable with respect to said pintle hook,*" requires no construction. (ref. Appendix A, 16) A person of ordinary skill in the art, upon reviewing the '043 patent, would clearly understand that the latch 40 is clearly pivotably moveable about the pivot member 60, with respect to the pintle hook 50. (ref. Appendix A, 2, Figure 1). Buyers' proposed construction, which incorporates the words "latch", "pivot" and "pintle hook", does not purport to define any of the

claim terms actually existing in the claim language, i.e., Buyers appears to agree that the terms "latch", "pivotably movable" and "pintle hook" require no construction.

Pintle Hook Comprises A Ball Member Extending From A Distal End of Said Pintle Hook

38. Dr. Radcliffe states, "…*The '043 Description does not require the ball to be permanently attached and not removable from the pintle hook… I believe the understanding a person of ordinary skill in the art would have upon reviewing the '043 patent is consistent with the "pintle hook comprises a ball member extending from a distal end of said pintle hook" definition proposed by Buyers as "a portion of the pintle hook which extends from the distal end of the pintle hook has the shape of a ball, and that ball shaped portion need not be integrally formed with or non-removable as to the remainder of the pintle hook."* (ref. Appendix A, 34, ¶ 16) I disagree.

39. CURT's proposed claim construction requires that the pintle hook and its components be one piece, without bolts, nuts, or fasteners. In other words, the ball member is part of the pintle hook, and as such, the ball member must be permanently attached and not removable from the pintle hook. (ref. Appendix A, 16)

40. In claim 12, the language "*said pintle hook comprises a ball member*" means that the ball member is actually a component of the pintle hook. Claim 12 depends on independent claim 9, which states that the pintle hook is integral with, and non-separable from the bar. If the ball member is a component of the pintle hook, and the pintle hook is integral with and non-separable from the bar, then the ball member would be non-separable from the bar as well. In other words, the ball member of the claimed invention would not be fastened to the pintle hook with, for example, screw threads and a nut. The ball member would be forged

or welded as an integral, non-separable part of the pintle hook. I believe that is why, in Buyers' previous lawsuit against Wallace Forge, Judge Gwin wrote that the lower jaw/hook 50 in the '043 patent is,

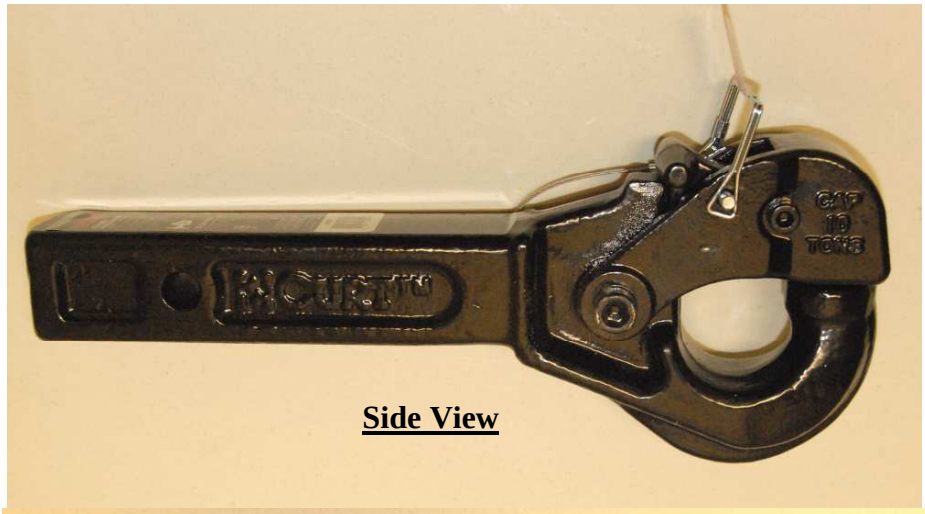
> "*The Court interprets "a lower jaw integrally formed with and nonseparable from said distal end of said bar" to require that the jaw,* ***and its components be one piece, without bolts, nuts, or other fasteners****. The Court interprets claim 6 of the '043 Patent as including the structure claimed in claim 1* ***and additionally configured to include an integrally formed and nonremovable ball extending from the*** *extreme end of the lower jaw projecting upward. As described in claim 6 of the '043 Patent,* ***the ball is part of*** *the lower jaw, and as such,* ***the ball must be permanently attached and not removable from*** *the lower jaw.* (ref. Appendix A, 37, pg. 16-17).

I agree with Judge Gwin's construction of the language regarding the ball member in the '043 patent. By the same token, I also agree with CURT's proposed claim construction regarding the "*ball member"* of the '043 patent,

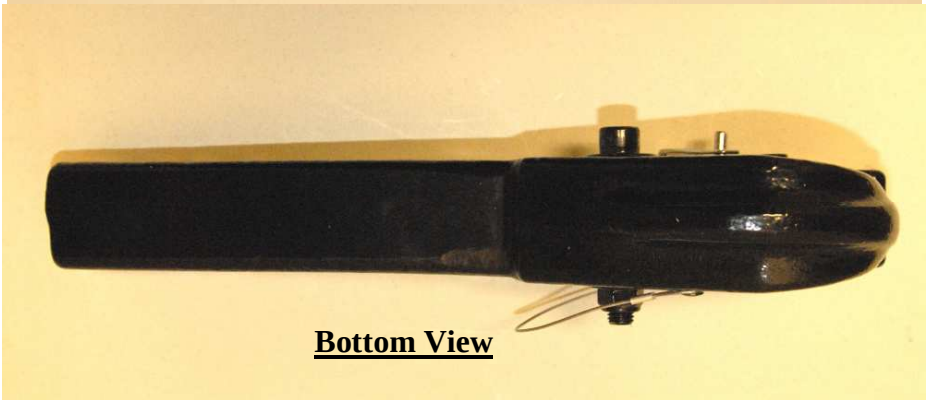
> *"integrally formed with and nonseparable from" requires that the pintle hook and its components be one piece, without bolts, nuts, or other fasteners. Claim 12 includes the structure of claim 9 and additionally configured to include an integrally formed and nonremovable ball extending from the distal end of the pintle hook. The ball member is part of the pintle hook, and as such, the ball member must be permanently attached and not removable from the pintle hook."* (ref. Appendix A, 16)

The Accused CURT Products

41. The CURT products accused by Buyers of infringing claims of the '043 patent are categorized into two groups. One group is comprised of Receiver-Mount Pintle Hook trailer hitches, model numbers 48004, 48005, and 48010. This group is shown as follows.



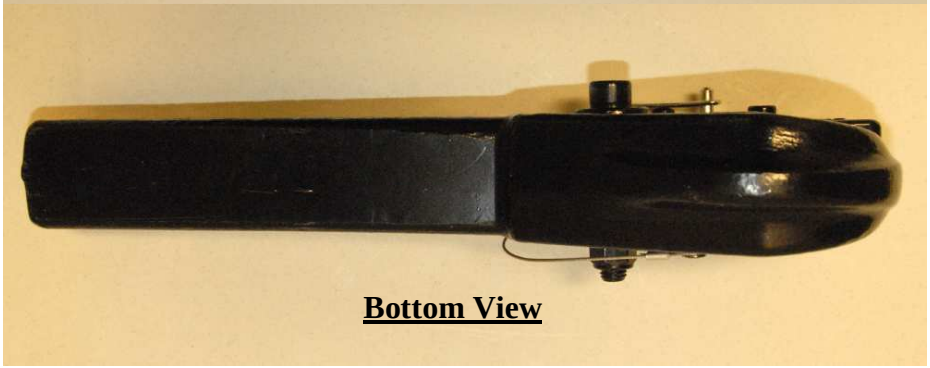
Side View



Bottom View

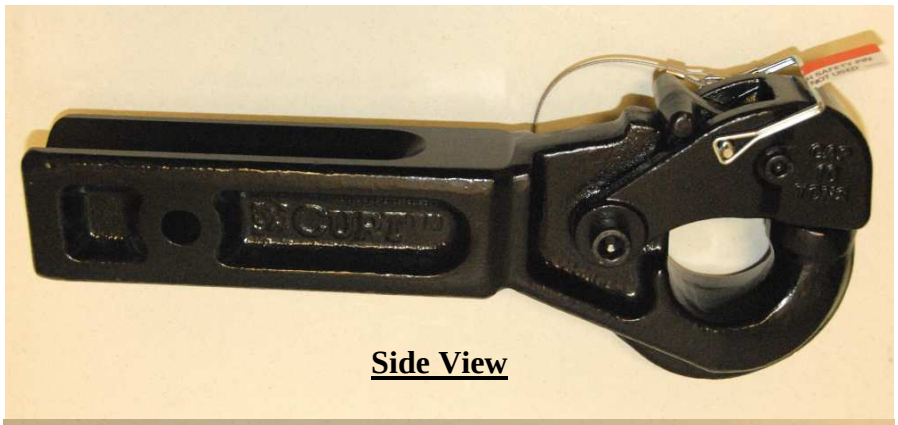
CURT Model 48004 Receiver-Mount Pintle Hook Trailer Hitch

Side View

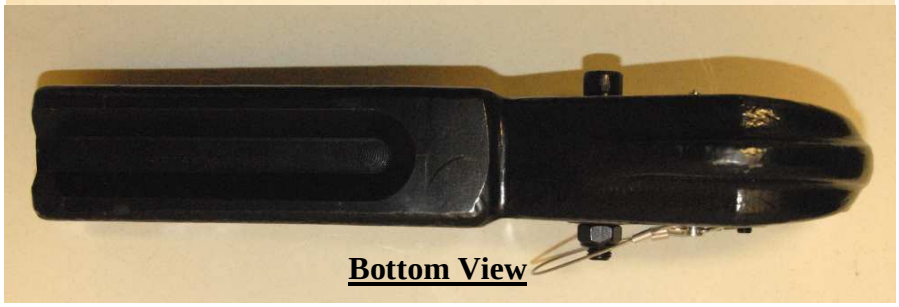


Bottom View

CURT Model 48005 Receiver-Mount Pintle Hook Trailer Hitch



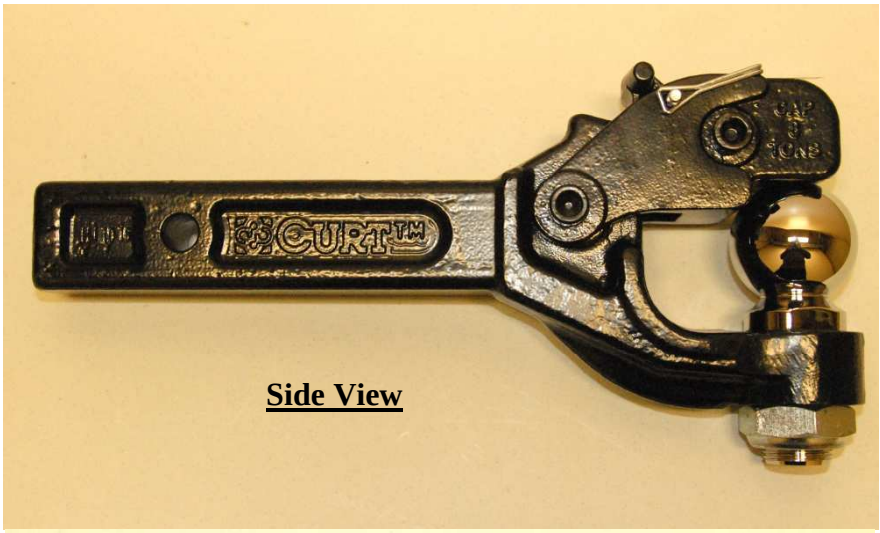
Side View



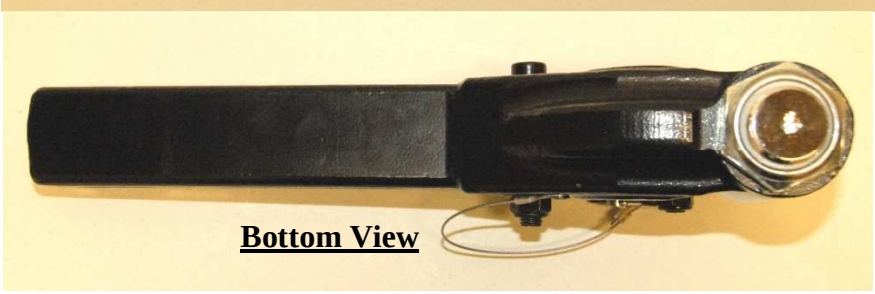
Bottom View

CURT Model 48010 Receiver-Mount Pintle Hook Trailer Hitch

42. The other group is comprised of Receiver-Mount Ball and Pintle Combination trailer hitches, model numbers 48006, 48007, and 48012. This group is shown below.



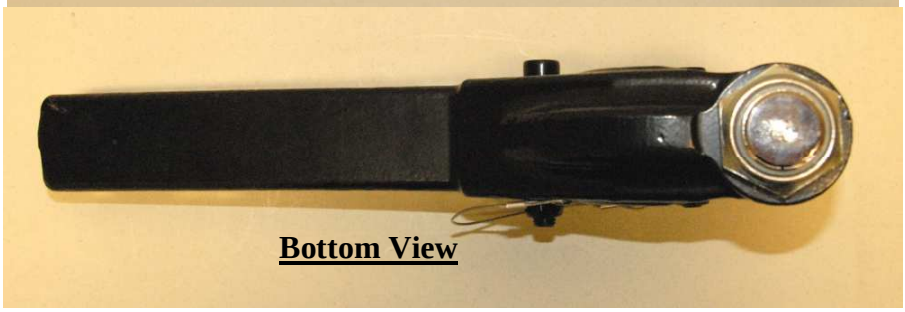
Side View



Bottom View

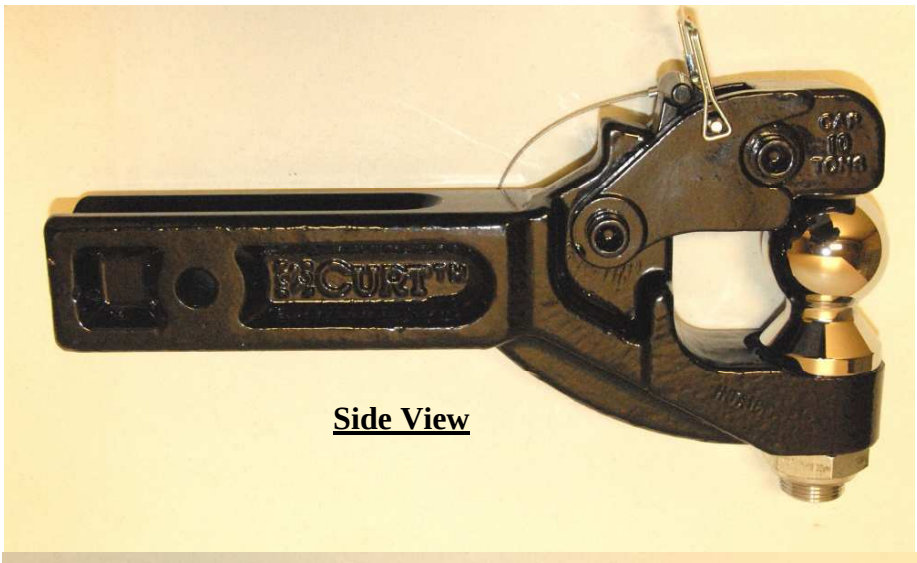
CURT Model 48006 Receiver-Mount Ball and Pintle Combination Trailer Hitch

Side View

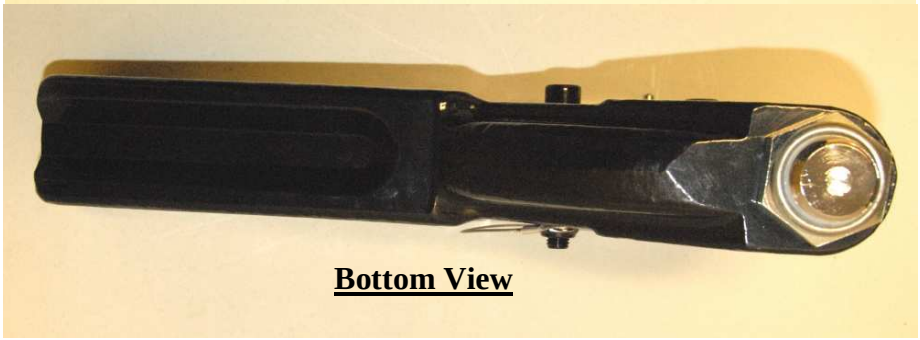


Bottom View

CURT Model 48007 Receiver-Mount Ball and Pintle Combination Trailer Hitch



Side View



Bottom View

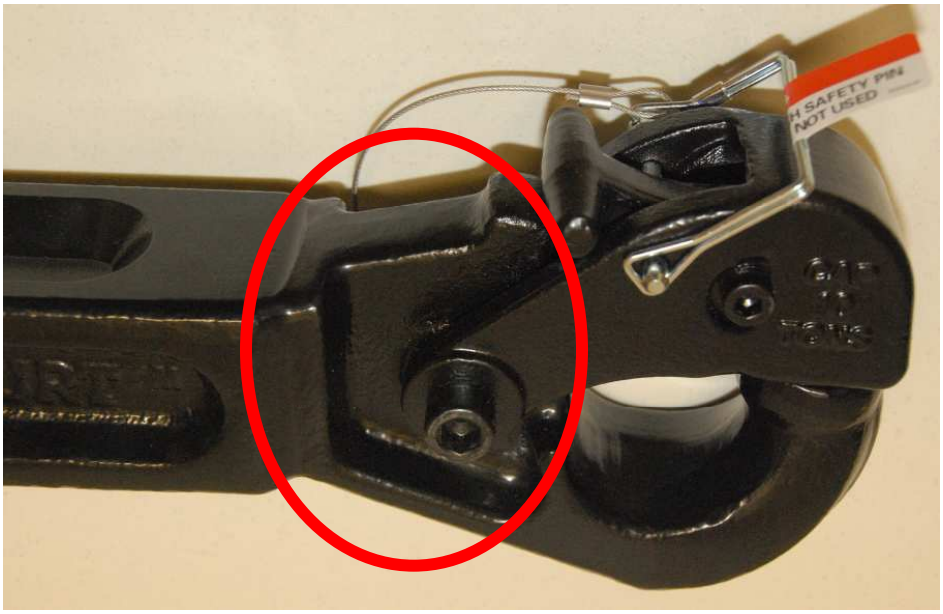
CURT Model 48012 Receiver-Mount Ball and Pintle Combination Trailer Hitch

Infringement Analysis of Independent Claim 9

43. Independent Claim 9 of the '043 patent states: *"A pintle hitch comprising a longitudinal bar member having a non-cylindrical configuration and further having a distal end, a proximal end, a first side extending between said distal end and said proximal end, and a second side opposite from said first side and also extending between said distal end and said proximal end; and a pintle hook and latch assembly disposed at said distal end of said bar member, said pintle hook being integral with and nonseparable from said distal end of said bar member by a neck having an upper and lower strengthening member and intermediate connecting portion, said latch being pivotally movable with respect to said pintle hook;*

wherein said bar defines a first narrowed region along said first side of said bar and a second narrowed region along said second side of said bar, thereby imparting a non-circular cross section to said bar along said first and second narrowed regions, and said proximal end of said bar is adapted to engage a receiver assembly."

44. In my opinion, the accused CURT products have no "*neck*." First off, there is no distinct, narrower transition portion of the pintle hitch between the wider bar and the hook/lower jaw on the Curt models 48004, 48005, 48006, 48007, 48010 and 48012. The transition portions of these accused CURT products is clearly not narrower than the bar *and* the hook/lower jaw as in, for example, Figure 2 of the '043 patent.

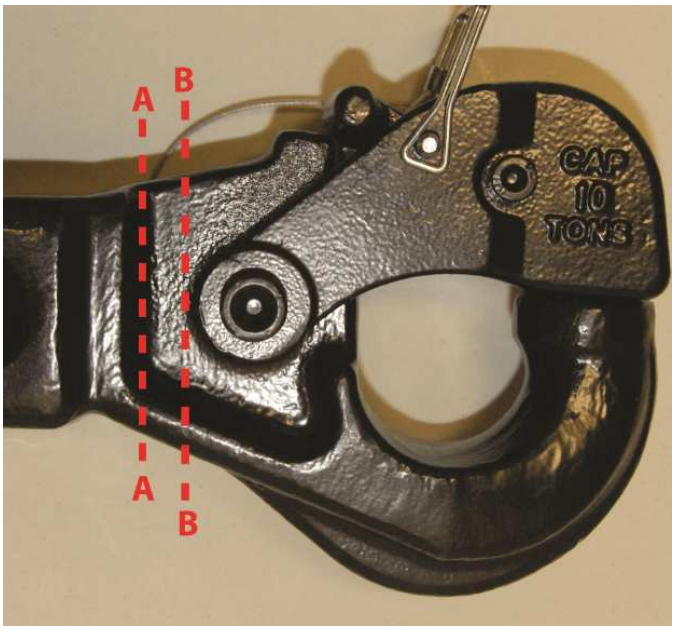


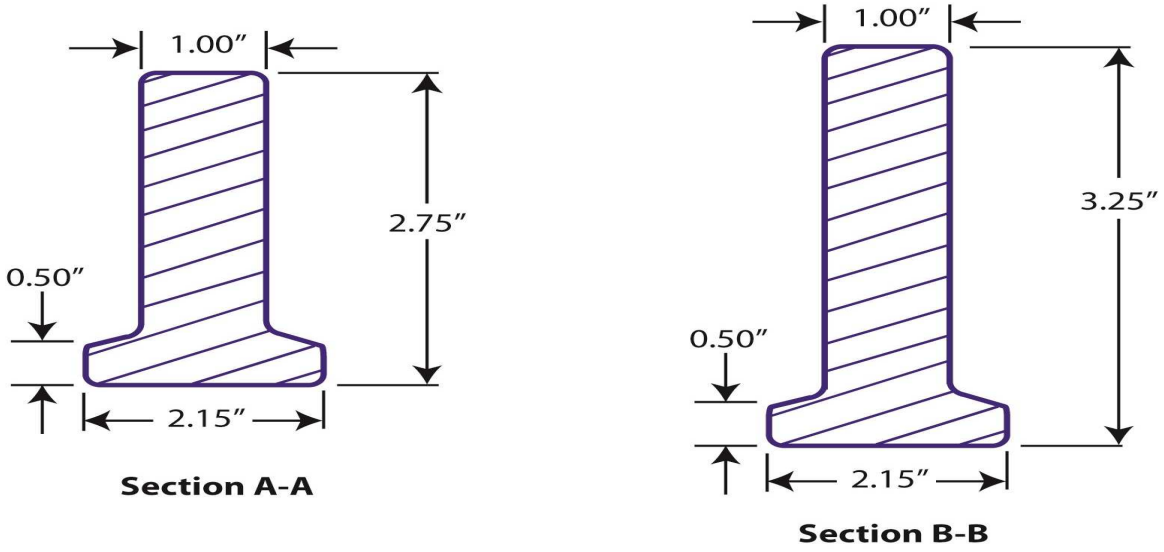
Transition Portion of an Accused CURT Product

45. Secondly, it is clear that none of the accused CURT models 48004, 48005, 48006, 48007, 48010, and 48012 have an identifiable upper strengthening member in their transition portions. In these accused CURT products, there is no distinct flange structure in the

transition portion that is above the intermediate connecting portion. There is clearly no intermediate connecting portion in the transition portion of each accused CURT products.

46. Without upper strengthening members, the CURT products' transition portions have less strength compared to what they would have with the upper strengthening member and intermediate connecting portion of claim 9. To illustrate this, I measured two inverted T-shaped cross sections of the transition portion of an exemplar CURT Model 48010 Pintle Mount with a 20,000 pound capacity and a 2.5 inch shank. The cross sections, which I denote as A-A and B-B, are shown and dimensioned are as follows:

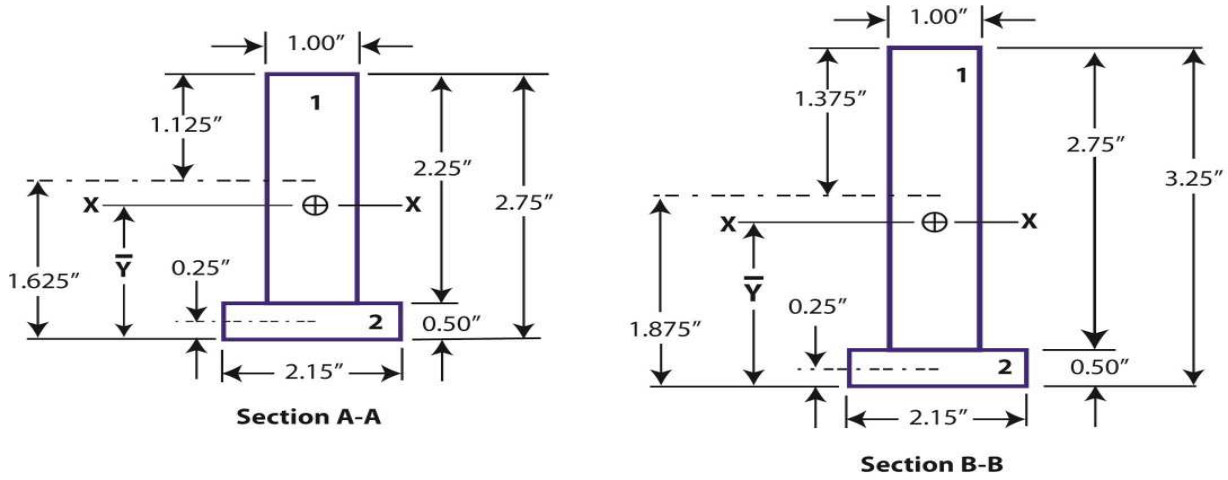




Cross Sections of the Transition Region of an Accused CURT Product

47. Cross sections A-A and B-B, as well as the rest of the transition portions of the accused CURT Model 48010, clearly do not have an upper strengthening member like the I-shaped cross section of the neck 30 that is shown in Figure 1 of the ‘043 patent. The following analysis will illustrate that, without an upper strengthening member, the accused CURT products are not as strong as they would be if they had one.

48. I will first calculate the moment of inertia, *I*, of simplified representations of sections A-A and B-B of the same dimensions as the aforementioned transition portion sections. For each section, the simplified representation of each section is broken up into two rectangular parts labeled 1 and 2.



Simplified Cross Section Representations of an Accused CURT Product

49. The inverted T-sections A-A and B-B are not vertically symmetrical, so the location of the sections' neutral axis is shifted vertically. For section A-A, the moment of inertia is found by first by calculating the vertical centroid of the section, then by using the Parallel Axis Theorem:

$$\overline{Y} = \Sigma Ay \div \Sigma A$$

$$\overline{Y} = [(1\ inch)(2.25\ inches)(1.625\ inches) + (2.15\ inches)(0.5\ inches)(0.25\ inches)] \div [(1\ inch)(2.25\ inches) + (2.15\ inches)(0.5\ inches)]$$

$$\overline{Y} = 1.180\ inches$$

$$I_{X1} = I_1 + A_1 d_1^2$$

$$I_1 = bh^3 \div 12 = (1\ inch)(2.25\ inches)^3 \div 12 = 0.949\ inches^4$$

$$A_1 = \text{bh} = (1\ inch)(2.25\ inches) = 2.25\ inches^2$$

$$d_1^2 = (1.625\ inches - 1.180\ inches)^2 = 0.198\ inches^2$$

$$I_{X1} = (0.949\ inches^4) + (2.25\ inches^2)(0.198\ inches^2) = 1.394\ inches^4$$

$$I_{X2} = I_2 + A_2 d_2^2$$

$$I_2 = bh^3 \div 12 = (2.15\ inch)(0.5\ inches)^3 \div 12 = 0.022\ inches^4$$

$$A_2 = \text{bh} = (2.15\ inch)(0.5\ inches) = 1.075\ inches^2$$

$$d_2^2 = (1.180\ inches - 0.25\ inches)^2 = 0.865\ inches^2$$

$$I_{X2} = (0.022\ inches^4) + (1.075\ inches^2)(0.865\ inches^2) = 0.952\ inches^4$$

$$I_{AA} = I_{X1} + I_{X2} = 1.394\ inches^4 + 0.952\ inches^4 = 2.35\ inches^4$$

50. Likewise, for section B-B, the moment of inertia is calculated:

$$\overline{Y} = \Sigma Ay \div \Sigma A$$

$$\overline{Y} = [(1\ inch)(2.75\ inches)(1.875\ inches) + (2.15\ inches)(0.5\ inches)(0.25\ inches)] \div [(1\ inch)(2.75\ inches) + (2.15\ inches)(0.5\ inches)]$$

$$\overline{Y} = 1.418\ inches$$

$$I_{X1} = I_1 + A_1 d_1^2$$

$$I_1 = bh^3 \div 12 = (1\ inch)(2.75\ inches)^3 \div 12 = 1.733\ inches^4$$

$$A_1 = \text{bh} = (1\ inch)(2.75\ inches) = 2.75\ inches^2$$

$$d_1^2 = (1.875\ inches - 1.418\ inches)^2 = 0.209\ inches^2$$

$$I_{X1} = (1.733\ inches^4) + (2.75\ inches^2)(0.209\ inches^2) = 2.308\ inches^4$$

$$I_{X2} = I_2 + A_2 d_2^2$$

$$I_2 = bh^3 \div 12 = (2.15\ inch)(0.5\ inches)^3 \div 12 = 0.022\ inches^4$$

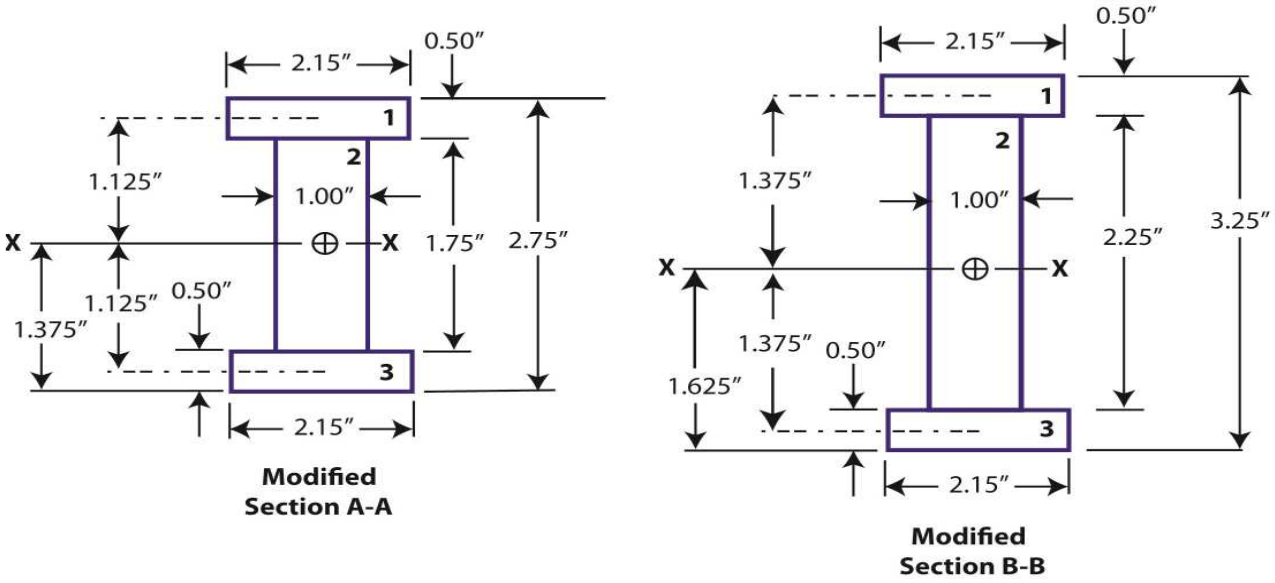
$$A_2 = \text{bh} = (2.15\ inch)(0.5\ inches) = 1.075\ inches^2$$

$$d_2^2 = (1.418\ inches - 0.25\ inches)^2 = 1.364\ inches^2$$

$$I_{X2} = (0.022\ inches^4) + (1.075\ inches^2)(1.364\ inches^2) = 1.488\ inches^4$$

$$I_{BB} = I_{X1} + I_{X2} = 2.308\ inches^4 + 1.488\ inches^4 = 3.80\ inches^4$$

51. Now, I will add upper strengthening member flanges to the two inverted T-sections sections to modify them into I-shaped structures like those of the neck 30 in the '043 patent.



Modified Cross Section Representations of an Accused CURT Product

In the modified I-shaped cross sections A-A_1 and B-B_1, the upper strengthening member flanges are labeled 1, the intermediate connecting portion webs are labeled 2, and the lower strengthening member flanges are labeled 3. The upper strengthening member flanges 1 are in the upper part and the lower strengthening member flanges 3 are in the lower part of the transition portion to add strength which will be seen in the following analysis.

52. For modified section A-A_1, the moment of inertia is calculated using the Parallel Axis Theorem:

$$I_{X1} = I_1 + A_1 d_1^2$$

$$I_1 = bh^3 \div 12 = (2.15\ inches)(0.50\ inches)^3 \div 12 = 0.022\ inches^4$$

$$A_1 = \text{bh} = (2.15\ inches)(0.50\ inches) = 1.075\ inches^2$$

$$d_1^2 = (1.125\ inches)^2 = 1.265\ inches^2$$

$$I_{X1} = (0.022\ inches^4) + (1.075\ inches^2)(1.265\ inches^2) = 1.382\ inches^4 = I_{X3}$$

$$I_{X2} = I_2 + A_2 d_2^2$$

$$I_2 = bh^3 \div 12 = (1.00\ inch)(1.75\ inches)^3 \div 12 = 0.447\ inches^4$$

$$A_2 = \text{bh} = (1.00\ inch)(1.75\ inches) = 1.75\ inches^2$$

$$d_2^2 = (0\ \text{inches})^2 = 0\ inches^2$$

$$I_{X2} = (0.447\ inches^4) + (1.\ 75\ inches^2)(0\ inches^2) = 0.447\ inches^4$$

$$I_{AA1} = I_{X1} + I_{X2} + I_{X3} = 1.382\ inches^4 + 0.447\ inches^4 + 1.382\ inches^4 = 3.21\ inches^4$$

53. Likewise, for modified section B-B_1, the moment of inertia is calculated:

$$I_{X1} = I_1 + A_1 d_1^2$$

$$I_1 = bh^3 \div 12 = (2.15\ inches)(0.50\ inches)^3 \div 12 = 0.022\ inches^4$$

$$A_1 = \text{bh} = (2.15\ inches)(0.50\ inches) = 1.075\ inches^2$$

$$d_1^2 = (1.375\ inches)^2 = 1.891\ inches^2$$

$$I_{X1} = (0.022\ inches^4) + (1.075\ inches^2)(1.891\ inches^2) = 2.055\ inches^4 = I_{X3}$$

$$I_{X2} = I_2 + A_2 d_2^2$$

$$I_2 = bh^3 \div 12 = (1.00\ inch)(2.25\ inches)^3 \div 12 = 0.949\ inches^4$$

$$A_2 = \text{bh} = (1.00\ inch)(2.25\ inches) = 2.25\ inches^2$$

$$d_2^2 = (0\ \text{inches})^2 = 0\ inches^2$$

$$I_{X2} = (0.949\ inches^4) + (2.25\ inches^2)(0\ inches^2) = 0.949\ inches^4$$

$$I_{BB1} = I_{X1} + I_{X2} + I_{X3} = 2.055\ inches^4 + 0.949\ inches^4 + 2.055\ inches^4 = 5.06\ inches^4$$

54. By adding an upper strengthening member to section A-A, its moment of inertia was increased from 2.35 $inches^4$ to 3.21 $inches^4$. If a 70,000 *inch-pound* moment were

applied to section A-A, and to modified section A-A_1, then the maximum bending stresses on those sections can be compared:

$$\sigma_{MAX} = Mc \div I_{A\text{-}A}$$

$$c = (2.75\ inches - 1.180\ inches) = 1.57 inches$$

$$\sigma_{MAX} = (70{,}000\ in\text{-}Lb.)(1.57\ inches) \div (2.35\ inches^4) = 46{,}766\ PSI$$

$$\sigma_{MAX} = Mc \div I_{A\text{-}A1}$$

$$c = 1.375 inches$$

$$\sigma_{MAX} = (70{,}000\ in\text{-}Lb.)(1.375\ inches) \div (3.21\ inches^4) = 29{,}984\ PSI$$

With the upper strengthening member added to section A-A, the maximum stress is reduced by about 16,800 PSI. In other words, by NOT including an "upper strengthening member" to dimensionally match its "lower strengthening member" at section A-A, CURT's design increases the maximum bending stress witnessed at section A-A by about 56%!

55. Likewise, by adding an upper strengthening member to section B-B, the transition region's moment of inertia was increased from 3.80 $inches^4$ to 5.06 $inches^4$. If a 70,000 *inch-pound* moment were applied to section B-B, and to modified section B-B_1, then the maximum bending stresses on those sections can be compared:

$$\sigma_{MAX} = Mc \div I_{B\text{-}B}$$

$$c = 3.25\ inches - 1.418\ inches = 1.832\ inches$$

$$\sigma_{MAX} = (70{,}000\ in\text{-}Lb.)(1.832\ inches) \div (3.80\ inches^4) = 33{,}747\ PSI$$

$$\sigma_{MAX} = Mc \div I_{B\text{-}B1}$$

$$c = 1.625 inches$$

$$\sigma_{MAX} = (70{,}000\ in\text{-}Lb.)(1.625\ inches) \div (5.06\ inches^4) = 22{,}480\ PSI$$

With the upper strengthening member added to section B-B, the maximum stress is reduced by about 11,300 PSI.

56. The analysis above illustrates the how addition of an upper strengthening member, like the one disclosed in the '043 patent, would significantly strengthen the transition portion of the accused CURT products. Note that reducing the maximum bending stress is particularly important for pintle hitches which have a "neck"; CURT's accused products are able to maintain an acceptable maximum bending stress in part because they have no "neck". The more a pintle hitch is necked down between the hook/jaw and the bar, the more important it is to maintain a low maximum bending stress at the neck (such as by having an upper strengthening member, a lower strengthening member and an intermediate connecting portion) toward minimizing likelihood of product failure.

57. Buyers uses their proposed claim construction to point to the vertical portion of the inverted T-shaped cross section of the transition portion of each accused CURT product, and refer to it as an "*intermediate connecting portion*." This vertical portion of the inverted T-shaped cross section is "connected" to the horizontal bottom portion of the inverted T. However, the vertical portion is "intermediate" to nothing, since there is no upper strengthening member in the transition portion of each accused CURT product. Further, even using Buyers' proposed constructions, there has been no showing that the portion Buyers labels **I** is separate and distinct from the portion Buyers labels **J**. Both **I** and **J** have identical, continuous 54 mm widths. Buyers is merely drawing arrows to different elevations of the same, continuous width section. Moreover, even using Buyers' proposed constructions, there has been no showing that the portion Buyers labels **I** makes any portion of the hitch (such as the claimed "neck") stronger: a portion with an entirely rectangular vertical cross-section does

make any other portion "stronger". This can be easily understood because, if the portion Buyers labels **I** were removed, then there would be no connection between the hook and the bar, and the pintle hitch would instead look like this:

In contrast, in the '043 patent, if both the upper strengthening member 34 and the lower strengthening member 36 were removed, the hook would still be connected to the bar by the intermediate connecting portion 32. To "make the neck stronger" as stated in Buyers' proposed constructions, there would still need to be a "neck" if the strengthening member were not present. Accordingly, even if ALL of Buyers' proposed constructions were to be adopted, there is still no showing in Dr. Radcliffe's report that portion **I** "makes the neck stronger" and no basis for a finding of infringement.

58. Therefore, it is my opinion that, with neither a neck nor an upper strengthening member, nor an intermediate connecting portion, the accused CURT products do not infringe independent claim 9 of the '043 patent.

Infringement Analysis of Dependent Claim 10 (Depending From Claim 9)

59. Dependent claim 10 of the '043 patent depends on independent claim 9. Claim 10 states: "*The pintle hitch of claim 9 wherein said pintle hook is C-shaped.*" While I have not reviewed the issue of the exact meaning of "C-shaped" as used in this claim language and prosecution history or how the "C-shape" might possibly be argued by Buyers to be

different from the prior art (i.e., which pintle hooks are not C-shaped?), the accused CURT products have pintle hook which I believe is generally "C-shaped". However, because those accused CURT products do not infringe independent claim 9 of the '043 patent, they also do not infringe dependent claim 10 of that patent.

Infringement Analysis of Dependent Claim 11 (Depending From Claim 9)

60. Dependent claim 11 of the '043 patent depends on independent claim 9. Claim 11 states: "*The pintle hitch of claim 9 wherein said bar member defines an aperture proximate said proximal end of said bar member, said aperture adapted to receive a pin.*" The accused CURT pintle hitches have bars with holes located near their proximal ends (as construed by CURT). The holes each accept a pin in order to secure the pintle hitch to the towing vehicle receiver tube. But such holes are not "proximate said proximal end of said bar member" but rather are proximate the distal end of said bar member as used at col. 3, lines 38-48 of the '043 patent. Dr. Radcliffe's report makes no attempt to explain his analysis of claim 11 consistent with col. 3, lines 38-48 of the '043 patent. If Dr. Radcliffe's construction of the term "proximal" is consistent with col. 3, lines 38-48 of the '043 patent, then CURT's hitch pin receiving aperture does not meet the "*proximate said proximal end*" limitation as a separate reason why claim 11 is not infringed. Regardless, as those accused CURT products do not infringe claim 9 of the '043 patent, they also do not infringe claim 11 of that patent.

Infringement Analysis of Dependent Claim 12 (Depending From Claim 9)

61. Dependent claim 12 of the '043 patent depends on independent claim 9. Claim 12 states: "*The pintle hitch of claim 9 wherein said pintle hook comprises a ball member extending from a distal end of said pintle hook.*" Some of the accused CURT pintle hitches, namely models 48006, 48007, and 48012 have a hitch ball extending from the distal

end of the pintle hook. The hitch balls are removable by loosening a nut with a wrench. The hitch balls of these accused CURT products are not integral with and nonseparable from the pintle hook, and the hitch balls of these accused CURT products are not integral with and nonseparable from the distal end of the bar member. The hitch ball is not a component part of the pintle hook as defined in the claim.

62. Therefore, in my opinion, the CURT pintle hitch models 48006, 48007, and 48012 do not infringe dependent claim 12 for this separate reason, in addition to not infringing independent claim 9.

Infringement Analysis of Dependent Claim 15 (Depending From Claim 9)

63. Dependent claim 15 of the '043 patent states: "*The pintle hitch of claim 9 wherein said bar defines a third narrowed region along said first side of said bar and a fourth narrowed region along said second side of said bar*."

64. The accused CURT products have separate narrowed regions located proximal and distal to the hitch pin receiving aperture. However, because those accused CURT products do not infringe independent claim 9 of the '043 patent, they also do not infringe dependent claim 15 of that patent.

Infringement Analysis of Independent Claim 17

65. Independent Claim 17 of the '043 patent states: "*A pintle hitch comprising a longitudinal bar member having a non-cylindrical configuration and further having a distal end, a proximal end, a first side extending between the distal end and the proximal end, and a second side opposite from said first side and extending between the distal end and the proximal end, said bar defining an aperture extending through said bar proximate said proximal end and further defining a first narrowed region along said first side of said bar and*

a second narrowed region along said second side of said bar; a lower jaw integrally formed with said bar and permanently disposed at said distal end of said bar by a neck having an upper and lower strengthening member and intermediate connecting portion, said lower jaw defining an aperture extending through said lower jaw; an upper jaw hingedly attached to said lower jaw, said upper jaw defining an aperture extending through said upper jaw, said upper jaw being positioned with respect to said lower jaw such that said aperture defined in said upper jaw is aligned with said aperture defined in said lower jaw; a pivot member disposed in said aperture defined in said lower jaw and said aperture defined in said upper jaw, wherein said pivot member serves to provide said hinged attachment between said upper jaw and said lower jaw; wherein said proximal end of said bar is adapted to engage a hitch receiver assembly."

66. Based on my analysis above for claim 9 of the '043 patent, it is also my opinion that, with neither a neck nor an upper strengthening member nor an intermediate connecting portion, the accused CURT products do not infringe independent claim 17 of the '043 patent. Based on my analysis above for claim 11, it is also my opinion that CURT's hitch pin receiving apertures are located near the proximal ends (as construed by CURT) of said bars, but such apertures are not "proximate said proximal end of said bar member" but rather are proximate the distal end of said bar member as used at col. 3, lines 38-48 of the '043 patent. Dr. Radcliffe's report makes no attempt to explain his analysis of claim 17 consistent with col. 3, lines 38-48 of the '043 patent. If Dr. Radcliffe's construction of the term "proximal" is consistent with col. 3, lines 38-48 of the '043 patent, then CURT's hitch pin receiving aperture does not meet the "*proximate said proximal end*" limitation as a separate reason why claim 17 is not infringed.

Infringement Analysis of Dependent Claim 19 (Depending From Claim 17)

67. Dependent claim 19 of the '043 patent states: "*The pintle hitch assembly of claim 17 wherein said lower jaw comprises a ball member extending from a distal end of said lower jaw.*"

68. Based on my analysis above for claim 12 of the '043 patent, it is also my opinion, the CURT pintle hitch models 48006, 48007, and 48012 do not infringe dependent claim 19 for this separate reason in addition to not infringing independent claim 17. The ball member of the CURT pintle hitch models 48006, 48007, and 48012 is NOT "*integrally formed with said bar and permanently disposed at said distal end of said bar*", and therefore cannot be viewed as being a component of the lower jaw.

Infringement Analysis of Dependent Claim 20 (Depending From Claim 17)

69. Dependent claim 20 of the '043 patent states: "*The pintle hitch assembly of claim 17 wherein said bar member further defining a third narrowed region along said first side of said bar and extending between said aperture defined in said bar and said proximal end of said bar, and further defining a fourth narrowed region along said second side of said bar and extending between said aperture defined in said bar and said proximal end of said bar.*"

70. The accused CURT products have an aperture in their bars so that the bars can be secured in receiver tubes on the towing vehicles, and have separate narrowed regions located proximal and distal to the hitch pin receiving aperture. However, because those accused CURT products do not infringe independent claim 17 of the '043 patent, they also do not infringe dependent claim 20 of that patent.

FURTHER ANALYSIS AND ADDITIONAL EVIDENCE

71. Further analysis of these issues may await rebuttal following my analysis of plaintiff's infringement position, an issue as to which I understand they bear the burden of proof. I reserve the right to respond in rebuttal to any positions that the plaintiff's may be permitted to take in this case.

72. I also reserve the right to submit additional evidence and opinions at trial.

Executed on: March 31, 2017

Philip J. O'Keefe, PE

Appendix A

Information Considered

1. Complaint, United States District Court for the Western District of Wisconsin, Buyers Products Company, Plaintiff, v. CURT Manufacturing LLC, Defendant, Case No. 16-CV-220-JDP
2. U.S. Patent No. 6,139,043
3. G.B. Patent No. 1,089,207
4. U.S. Patent No. 2,431,694
5. U.S. Patent No. 5,873,594
6. U.S. Patent No. 6,010,142
7. U.S. Patent No. 5,671,937
8. U.S. Patent No. 4,993,610
9. U.S. Patent No. 3,963,266
10. U.S. Patent No. 1,379,133
11. U.S. Patent No. 5,695,204
12. Mechanics of Materials, by E. P. Popov, Prentice – Hall, Englewood Cliff, NJ, 1976
13. Defendant's Memorandum in Support of Motion to Dismiss Plaintiff's Complaint for Failure to State a Claim, United States District Court for the Western District of Wisconsin, Buyers Products Company, Plaintiff, v. CURT Manufacturing LLC, Defendant, Case No. 16-CV-220-JDP
14. Opposition to Motion to Dismiss by Plaintiff Buyers Products Company, United States District Court for the Western District of Wisconsin, Buyers Products Company, Plaintiff, v. CURT Manufacturing LLC, Defendant, Case No. 16-CV-220-JDP
15. Defendant's Reply Memorandum in Support of Motion to Dismiss Plaintiff's Complaint for Failure to State a Claim, United States District Court for the Western District of Wisconsin, Buyers Products Company, Plaintiff, v. CURT Manufacturing LLC, Defendant, Case No. 16-CV-220-JDP
16. CURT's Response to Buyers' Proposed Constructions, United States District Court for the Western District of Wisconsin, Buyers Products Company, Plaintiff, v. CURT Manufacturing LLC, Defendant, Case No. 16-CV-220-JDP
17. CURT's Prior Art/Invalidity Contentions, including EXHIBIT A, United States District Court for the Western District of Wisconsin, Buyers Products Company, Plaintiff, v. CURT Manufacturing LLC, Defendant, Case No. 16-CV-220-JDP
18. Declaration of Kevin J. Malaney in Support of Defendant's Motion to Dismiss Plaintiff's Complaint for Failure to State a Claim, including exhibits 1-12, United States District Court for the Western District of Wisconsin, Buyers Products Company, Plaintiff, v. CURT Manufacturing LLC, Defendant, Case No. 16-CV-220-JDP
19. Proposed Stipulated Protective Order, United States District Court for the Western District of Wisconsin, Buyers Products Company, Plaintiff, v. CURT Manufacturing LLC, Defendant, Case No. 16-CV-220-JDP
20. Plaintiff's Infringement Contentions, United States District Court for the Western District of Wisconsin, Buyers Products Company, Plaintiff, v. CURT Manufacturing LLC, Defendant, Case No. 16-CV-220-JDP
21. 2517-2618invalidityart.pdf
22. http://www.curtmfg.com/part/48006
23. http://www.curtmfg.com/part/48007
24. http://www.curtmfg.com/part/48012
25. http://www.curtmfg.com/part/48004
26. http://www.curtmfg.com/part/48005
27. http://www.curtmfg.com/part/48010

28. Physical exemplar CURT part no. 48004
29. Physical exemplar CURT part no. 48005
30. Physical exemplar CURT part no. 48006
31. Physical exemplar CURT part no. 48007
32. Physical exemplar CURT part no. 48010
33. Physical exemplar CURT part no. 48012
34. Expert Report of Professor Clark J. Radcliffe, Ph.D., United States District Court for the Western District of Wisconsin, Buyers Products Company, Plaintiff, v. CURT Manufacturing LLC, Defendant, Case No. 3:16-cv-00220-WMC, February 17, 2017
35. Report of Hitch Testing Performed on Tow Ball Designs, prepared for Buyers Products Companies by Test Link Services, Inc., Project No. 15004, 2/16/15
36. Merriam Webster Collegiate Dictionary, 11th Edition, Merriam Webster, Inc., Springfield, MA, 2009
37. Court Claim Construction Order, In The United States District Court For The Northern District Of Ohio, Eastern Division, Buyers Products Co., Inc., Plaintiff, v. Wallace Forge Co., Inc., Defendant, Case No. 5:01-CV-1833, dated January 16, 2002
38. Validity Analysis Expert Report of Philip J. O'Keefe, PE, United States District Court for the Western District of Wisconsin, Buyers Products Company, Plaintiff, v. CURT Manufacturing LLC, Defendant, Case No. 3:16-cv-00220-WMC, February 17, 2017